

Reefs and Rebreathers

by Karen Stearns

With more than 20 kilometers of protected reef to explore, most visitors to Wakatobi find they run out of bottom time long before they run out of things to see. Short of growing gills, one of the best ways to rack up a bit more underwater exploration is to dive with a rebreather. In recent years, the popularity of closed-circuit rebreathers, aka CCR, has continued to increase among the recreational diving community. There are a number of advantages rebreathers provide, including the possibility of increased no-stop bottom times, the unit's ability to deliver warmer, moister breathing gas, and the benefits of silent operation, which may allow closer approaches to marine life.

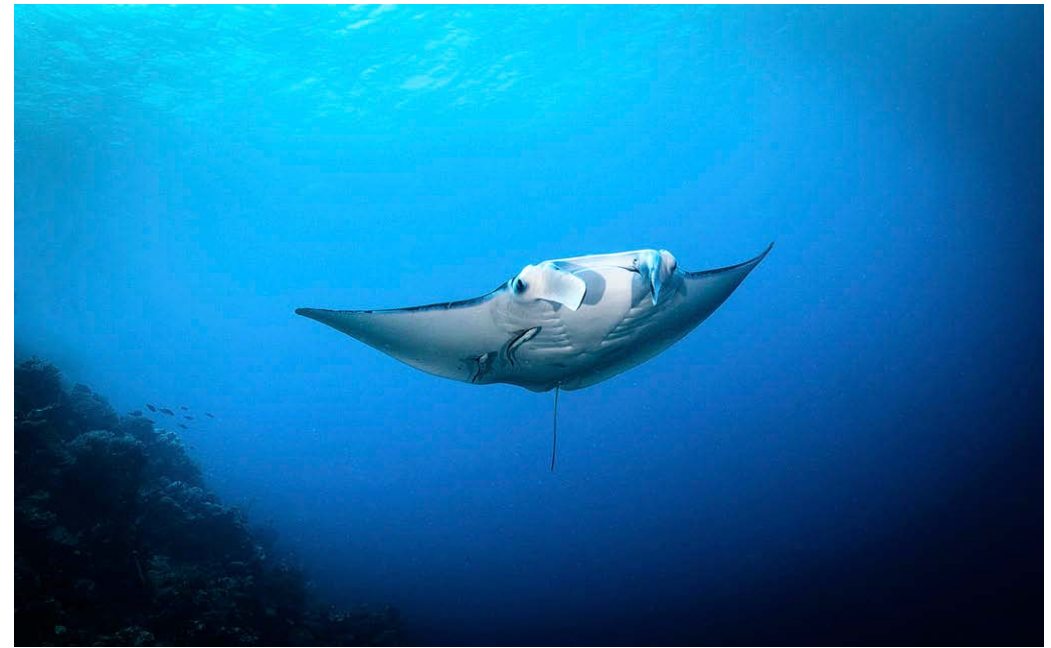
In many ways, Wakatobi is an ideal location for rebreather diving. The same high-relief reefs that allow open-circuit scuba divers to enjoy long multi-level dives are perfect for rebreather profiles, as divers can begin with an investigation of the deeper portions of the sites, then perform gradual hour-plus ascents to depths of five meters or less, enjoying spectacular scenery and abundant marine life the entire dive while incurring little or no decompression

obligation. A rebreather's lack of exhalation bubbles also provides advantages when viewing the many rare small and sometimes shy animals found on Wakatobi's reefs.

The only downside that many rebreather divers may cite is the difficulty of finding the supplies and support needed for operation. To accommodate closed-circuit divers, a resort has to stock absorbent medium, oxygen fills, supply cylinders and bailout tanks, all administered by a staff that understands the protocols and altered dive profiles a rebreather creates. Diving itineraries may also need to be modified to accommodate the typically longer bottom times CCR diving provides. Fortunately, there are a growing number of dive resorts now catering to the needs of closed-circuit divers, and Wakatobi is at the head of this list. Here, rebreather divers are provided not only the support structure their equipment requires, but also enjoy a marine environment that is ideally suited to maximizing the in-water benefits of rebreathers.

Craig Willemsen, the owner of Silent World Diving in Bellevue, Washington, has led several rebreather trips to Wakatobi. "Many on the last





trip were diving the KISS Sport or the Orca Spirit, and a couple had Evolutions,” he says. “Most of the group packed all their gear in a carry on and two regular 50-pound checked bags, or in the case of the Evolutions, 70 pounds. There’s really no problem traveling with a rebreather if you pack things correctly.”

Daily diving activity is also a smooth process for CCR divers at Wakatobi, Willemsen reports. “The dive staff at Wakatobi is very rebreather savvy. They understand the equipment and the profiles, and several of them are avid closed-circuit divers themselves.” To facilitate their diving activity, his group was provided with their own boat, which

allowed them to make longer dives without keeping open-circuit divers waiting.

Wakatobi’s closed-circuit rebreather diving program was among the first in the Indo-Pacific region, dating back to 2006. Soon after resort founder Lorenz Mäder purchased his first AP Evolution CCR, he realized the need to invest in the systems required to support closed circuit diving. The dive shop was equipped with gas booster pumps, and stocked with Sofnolime absorbent, two- and three-liter supply tanks in both steel and aluminum, and an assortment of off board bailout tanks and regulators. The resort’s oxygen supply was increased, and arrangements were put

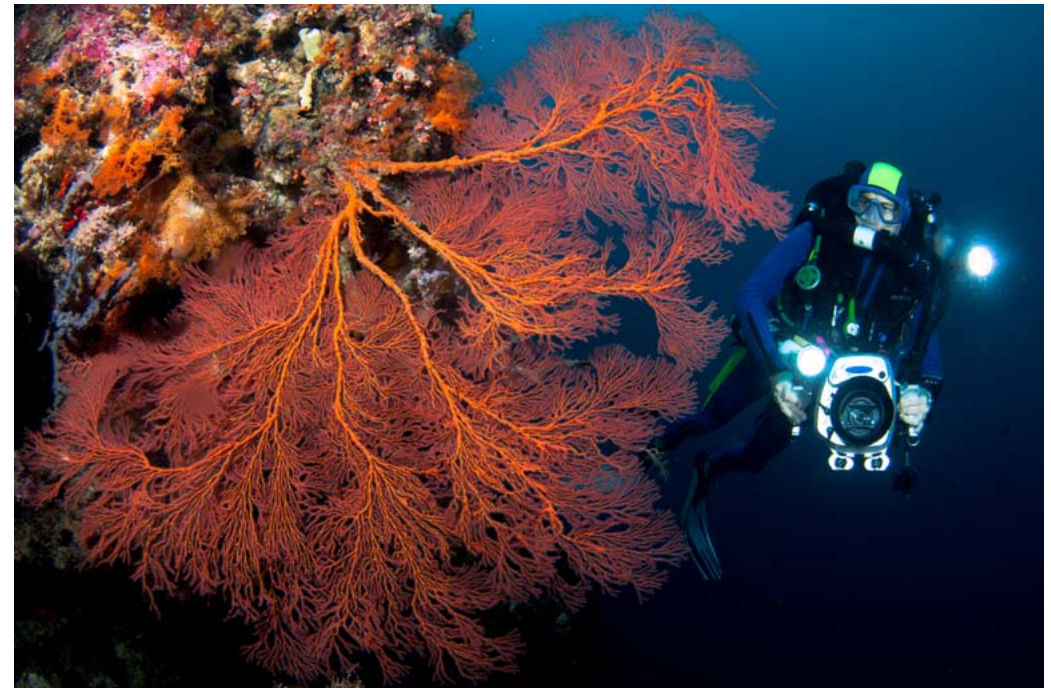
in place for the delivery of helium to support trimix diving. Currently, there are three certified Advanced Gas Blenders on the dive staff.

New dive protocols and boat schedules were also created to accommodate CCR diving schedules. On many trips, CCR divers are paired with a dive guide who is also CCR qualified, and who will accompany the dive team through an extended profile. Even on those occasions when CCR-qualified guides are not available, the dive team can create a dive plan that allows CCR divers to enjoy extended bottom times with guides on open circuit equipment who split their services into two shifts.

Larger CCR groups are often

assigned their own boat, allowing them to take maximum advantage of the silent diving experience and enjoying the full freedom the technology allows. Currently, the resort maintains ample supplies of Sofnolime 797 (8-12 mesh) and N2050 (4-8 mesh) to support up to 15 CCR divers at all times, and even larger groups can be accommodated with advanced notice. Cartridge absorbent can also be provided given sufficient lead time to ensure shipping.

“We took a group of 16 divers to Wakatobi in 2013 and had a great time,” says Josh Thornton of Dive Addicts in Draper, Utah. The dive staff and resort staff were pleasant and eager to provide great service.



There were no problems whatsoever providing oxygen and sorb, and I would not hesitate to take a larger group of CCR divers back to the resort, in fact we are looking at planning a CCR-only trip in 2016. You may need to arrange the support before your trip, but let them know what you need and they will find a way to provide it.”

CCR diving is also available aboard Wakatobi’s liveaboard dive yacht, the Pelagian. Because diving activity on Pelagian is conducted from the ship’s tenders, diving a rebreather from these smaller boats requires a higher degree of fitness and comfort with the equipment than would be

the case aboard the resort’s large day boats. In addition, because gear space aboard the tenders is limited on trips when the Pelagian is filled to capacity, CCR diving at such time would be limited to a single off-board configuration rather than the more complex rigging needed to stage extended decompression or trimix dives.

Any CCR divers planning to visit Wakatobi should be certified on the equipment they bring. The resort is not currently geared to providing “rebreather experience” dives or basic training on CCR equipment, and visiting groups are not allowed to perform their own classes, as

the instructing would require an Indonesian permit. The dive center stocks spare parts for AP Diving CCRs, but divers diving other brands will need to carry any spares they feel necessary. A better option for those seeking to begin or enhance their CCR skills would be to complete an entry-level course (no deco, air diluent, 30m max depth) pre-trip and then collect hours on the unit during a Wakatobi holiday. While at the resort, divers trained on AP Divers CCRs could also engage Lorenz as a private instructor, and complete a second-level course (deco, air diluents, 45m max depth).

“Our last group was all about the quality of bottom time, not just

the quantity,” Willemsen says. “We typically stayed down longer on each dive, but we made fewer dives each day.” Instead of the five-dive-a-day schedule that some guests employ, the rebreather group usually made three dives a day, each lasting anywhere from 90 minutes to more than two hours. Profiles typically began with a visit to the deeper portions of the reef at 130 to 150 feet, with ascents that skirted decompression while taking advantage of the fixed PO₂ gas mixtures rebreathers provide, he says. Because Wakatobi’s reefs come within mere feet of the surface, what might be considered a safety or deco stop at other places becomes an extended



hangout on the light-filled shallows atop Wakatobi's protected reefs.

Many of the group's extended time dives were conducted as long drifts over two sites, connecting what would otherwise be two separate dives. Among these connections were Fan 38 East and West, from Galaxy to Fan Garden, Cornucopia and Magnifica together, and the entire length of Roma.

"In the end, we probably racked up a bit more bottom time than the open-circuit guests, but that wasn't the big payoff," Willemsen says. "One of the best things about diving a rebreather is the silence. We had a smaller group that was really

squared away underwater, and we were able to spend more time with any given subject without worrying about gas duration or decompression obligations." This combination of silence and time allowed the group to not just see the fish, but to enjoy the luxury of extra time and the silence needed to truly become familiar with the intricacies of life on the reef.

CCR can also provide some remarkably long bottom times when diving in the shallower waters of the resort's renowned House Reef. Divers can easily access the House Reef day or night (monitored from 6am to 10pm) by wading in from the beach right in front of the resort, or by using



the ladder off the jetty. Taxi boats are also available during daylight hours to drop divers up current, allowing for a nice long drift along the edge of the wall, ending back to the resort.

On the House Reef, CCR divers are asked to follow the same basic protocols as open-circuit scuba divers - either go with a buddy (also on CCR) or have a CCR instructor or solo diver qualification. Currents on the House Reef can range from mild to fairly wild during rising and falling tides. Wakatobi's dive center recommends for dives longer than two hours that CCR divers tow a small surface marker to show their position. This allows the staff to monitor the

divers' location (since there are no bubbles) and ensure that they are not drifting too far away.

According to Lorenz, the shallower depths of the House Reef, combined with the constant PO2 advantages of CCR, make it possible to do very long dives safely. In theory, you could spend up to 10 hours exploring the reef shallows, depending on the personal metabolism and equipment configuration. Lorenz has personally made dives of six hours, ending it there because, "well, then I got hungry."

The warmth and clarity of the water further enhances the enjoyment of extended-duration dives at Wakatobi, Willemsen says. "Overall, it would be hard to imagine a more perfect environment. You don't have to dive a rebreather to experience all the wonderful attractions of Wakatobi, but having these systems can add yet another layer to your enjoyment of this magnificent ecosystem."

Karen Stearns

For more information about Wakatobi's rebreather support services, or to plan a trip, contact our Wakatobi office at

office@wakatobi.com
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